CSSP

EXTENDING SUCCESSFUL HOSPITAL-BASED CHILD SURVIVAL STRATEGIES INTO SURROUNDING URBAN, PERI-URBAN, AND RURAL COMMUT'IITIES OF BOACO, NICARAGUA

cs-VII

Grant # PDC-0500-G-00-1064-00

FINAL EVALUATION

September 1991 - February 1995

Submitted to

Agency for International Development
BHR/PVC/CSH
Washington, DC 20523

Submitted by

The People-to-People Health Foundation, Inc.
(Project HOPE)
Millwood, Virginia 22646
(703) 837-2100

May 1995

External Evaluator: Julio R. Calderón, MD
Project Manager, U.S.: Julianne S. Guy, MPH
Project Diior, Nicaragua: Hugo Barquero, MD

TABLE OF CONTENTS

ACRONYMS

ADRA	Adventist Development and Relief Agency
ARI	Acute Respiratory Infection
ALRI	Acute Lower Respiratory Infection
Brigadistas	Community Health Volunteers
CHV	Community Health Volunteer
DDC	Diarrheal Disease Control
EPI	Expanded Program on Immunization
KPC	Knowledge, Practice and Coverage
MINSA	MOH of Nicaragua
MOH	Ministry of Health
NGO	Non-Governmental Organization
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PAHO	Pan American Health Organization
PCV	Peace Corps Volunteer
PROFAMILIA	Local Private Family Planning Organization
PVO	Private Voluntary Organization
SILAIS	Local Systems for Integrated Health Care
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
WFA	Women of Fertile Age

EXECUTIVE SUMMARY

The final evaluation of Project HOPE's CS-VII project ***&tending Successful Hospital-Bused Child Survival Strategies into Surrounding Urban, Per&Urban, and Rural Communities*** *of* ***Boaco/Nicaragua*** took place on 6 to 26 of February 1995. The project was funded by the USAID Office of Private & Voluntary Cooperation, Bureau for Humanitarian Response and Project HOPE.

The evaluation team consisted of Dr. Julio Calderdn, External Evaluator, Dr. Hugo Barquero, Country Director, Project HOPE/Nicaragua, Ms. Julianne Guy, Assistant Director, MCH Programs, Project HOPE, USA, and Dr. Luisa Castrillo, Chief, Municipal Health Center Camoapa, MINSA.

The goal of this project was to reduce the morbidity and mortality in children and mothers, principally in children under two years of age and women of fertile age in the rural and peri-urban areas of Boaco and Camoapa. Based on the results from the baseline knowledge, practice, and coverage survey (KPC) and input from the Ministry of Health (MINSA), the project developed its detailed implementation plan (DIP) which emphasized health education at the community level.

The project focused on five priority child survival interventions: immunization of children under one and women of reproductive age; diarrheal disease control; nutrition (breastfeeding promotion, appropriate complementary feeding and weaning practices, growth monitoring, and promotion of vitamin A); and maternal care (promotion of prenatal care and child spacing/family planning). The project HOPE staff consisted of 14 individuals trained in the CS strategies and adult popular education methodologies (e.g., ***Tmining without Liferacy).*** Over the duration of the project, 24 MINSA staff, two Peace Corp Volunteers, and 301 ***brigadistas*** (community health volunteers) were trained in the priority interventions and data collection.

The project used basic messages for each intervention based on UNICEF's ***Facts*** *for* ***Life***. A total of 65 communities were covered in Boaco and 62 in Camoapa, and 186 community oral rehydration units (CORUs) were established at the community level to serve the population with Oral rehydration Therapy. Some of these CORUs also provided contraceptives at low cost. In addition, immunization records were maintained at the community level to assist with the tracking of the immunization status of children under five.

Most of the project objectives were achieved or surpassed end-of-project benchmarks. At project end:

- 82% of children 12 - 23 months were completely immunized (baseline: 36%);
- 51% of mothers with maternal health cards had received two or more doses of IT (baseline 26.7%);
- 69% of mothers were using ORT (baseline: 4 1.9 %);

- 41.3% of mothers had improved their feeding practices (baseline: 18.4%);

- 83% of mothers recognized that rapid breathing is a sign of pneumonia and 25.3 % recognized chest indrawing (baseline: 53.5% and 1.496, respectively);

- 64% of mothers sought help for children with danger signs of pneumonia at the health center or health post (baseline: 56.8%);

- 57.3% of children under four months received exclusive breastfeeding; and

- 80% of mothers initiated breastfeeding within one hour of birth (baseline: 49.5%).

In addition: the project reported the following outputs:

- Mothers groups organized: l-4 per brigadista, with an average of 20 mothers per group;
- 5,420 health education talks;
- 35,584 home visits;
- 5,533 children immunized;
- 5,456 women of reproductive age immunized;
- 34,312 ORS packets distributed.

Close coordination with MINSA at the departmental and municipal level and training of MINSA staff will promote long-term institutional sustainability of the CS activities. In addition, the commitment of the brigadistas to serving their communities and providing health education will promote the sustainability of the health knowledge and practices at the community level. Even though the final survey cannot provide data on project impact, MINSA has reported an increase in community demand for preventive services and noted a reduction in diarrhea related deaths.

INTRODUCTION

This document presents the results of the final evaluation of the CS VII project "Extending Successful Hospital-based Child Survival Strategies into Surrounding Urban, Per&urban, and Rural Communities of Boaco, Nicaragua", financed by Project HOPE and the AID Bureau for Food for Peace and Voluntary Assistance/ Office of Private and Voluntary Cooperation. This final evaluation was carried out in February, 1995.

The project is an example of a successful educational intervention using simple messages and simple methodologies to reach an under-served population with very limited resources.

The project was carried out in a part of the department of Boaco, Nicaragua. Two municipalities were included: Boaco with a population of 43,468 and Camoapa with a population of 32,600. At project start-up in February of 1992, the plan was to include 97 rural communities, but by the end of the project, a total of 127 communities were participating in the five CS interventions.

As a result of the work done by the HOPE staff in cooperation with MJNSA, the final evaluation showed positive changes in the knowledge and practices of mothers. Basic health problems are being solved locally, and there is also an increase in demand for health services, medicines, and for improved living conditions.

The project is a notable example of the coordination between a private voluntary organization and the local Ministry of Health (MINSA) of SILAIWBOACO. The transfer of management responsibility to MINSA was well conducted ensuring their capability to sustain future activities of the brigadistas and other community groups.

The transfer of knowledge was a success because the health educators trained the brigadistas and the brigadistas taught the mothers with the support of the HOPE staff. The brigadistas will continue to work when HOPE leaves the area because they feel pride in their efforts and now have an important role in their communities as health counselors.

The project has the potential to serve as a model for epidemiological surveillance and as a source of qualitative data for guiding activities in the health sector beyond the department of Boaco. Because of their experience and skills, the HOPE personnel are capable of training other PVO's in the implementation of their effective educational strategy.

The following aspects could he strengthened: (1)The information system could collect data to show tendencies. (2)To avoid taxes and ensure long-term prospects for employees, HOPE/ Nicaragua should pursue national legal NGO identity. (3)Training the HOPE personnel in the use of qualitative research methods such as focus groups and in-depth interviews would enhance their ability to conduct formative and evaluation research.

METHODOLOGY

The final evaluation was conducted in the areas of Boaco and Camoapa from February 6 to 26, 19%. The evaluation team consisted of Julianne Guy, MPH representing HOPE Center; Dr. Hugo Barquero, program director of HOPE/Nicaragua; Dr. Luisa Castrillo, chief of the Municipal Health Center of Camoapa; and Dr. Julio Calderdn, external evaluator.

During the two-week field visit in Nicaragua, the evaluation team carried out various activities in the communities of Boaco and Camoapa. A schedule of activities is attached and the basic tasks were as follows:

1. Revision of documents including the baseline, mid-term and final survey, the DIP, and the mid-term evaluation report.

2. Interviews with HOPE's personnel in Nicaragua.

3. Visits to communities in which the project worked to interview key individuals such as brigadistas, mothers, local mayors, and teachers.

4. Interviews with personnel of counterpart institutions.

5. Review of the educational and audio-visual materials used in the five CS components.

6. Review of the information system.

I. PROJECT ACCOMPLISHMENTS AND LESSONS LEARNED

A. Accomplishments

The project goal was to reduce infant and maternal mortality especially among children under two years of age and among women of fertile age in the rural and per-i-urban areas of Boaco and Camoapa. From interviews with MINSA, it's possible to conclude that the mortality in the target population has decreased during the past year and the epidemiological profile has changed. One example is that the leading cause of death among children was IRA, but last year this dropped to second place and deaths continue to decrease.

The Regional Hospital of Boaco reports a 60% decrease in the number of children admitted for rehydration due to diarrhea. They attribute this dramatic reduction to the project's education of families in how to prevent/treat dehydration at home.

Compared to the baseline data, the final survey shows positive changes in the KPC of the target population. For most indicators, the project met or exceeded DIP goals. A copy of the final survey is found in Appendix A along with results for relevant indicators.

A1.-A3. Comparison of DIP Objectives with Project Accomplishments

Immunization

DIP Objective:	70% of children 12 - 23 months will be completely and correctly immunized.
Baseline:	***36%***
Final:	***82.6%***

Project HOPE achieved these successes in child immunization through health education activities and by providing transportation to MINSA staff to vaccinate in the communities. These results may also in part be due to the fact that Project HOPE staff vaccinated earlier on in the project. Later on this activity was ended because it was neither cost-effective nor sustainable, and emphasis was placed on training MINSA staff in the immunization schedule, importance of the immunization card, vaccination strategies, EPI indicators, cold-chain maintenance, and handling and storage of vaccine.

The brigadistas were trained in immunization, education, and promotion and supported MINSA's immunization activities. Every months, the brigadistas provide their monthly activity reports to Project HOPE which are then analyzed to monitor coverage. The brigadistas check immunization cards, and each community has an immunization record that contains the name, address, and vaccines given to each child under five years. A copy of this record is maintained at the health center or health post.

Several successful strategies were used to reduce missed opportunities: promotion of the immunization card; vaccination of children presenting with other health problems; vaccination of ill children; and giving BCG and measles vaccine independently; and maintaining the community-based immunization record of all children under five and their immunization status. Similarly, women were vaccinated regardless of motive for health center visit; an immunization record was maintained at the community level; and TT use was promoted through community education.

To strengthen the cold-chain, Project HOPE provided three refrigerators to MINSA to be able to keep vaccines on hand in health centers and posts in Boaco and Camoapa. The cold-chain is supervised regularly.

In coordination with MINSA, Project HOPE updated the EPI surveillance norms. Community groups are supposed to report all cases of immunizable diseases. MINSA now has a current protocol on how to handle cases of flaccid paralysis and other immunizable diseases. In the past year, no case was reported for polio, measles, diphtheria, pertussis, and tetanus.

ndividuals trained in EPI and missed opportunities. 24 MINSA staff, and 301 brigadistas.

Management of Diarrheal Diseases

DIP Objectiw:	70% of mothers will use oral rehydration therapy,
Baseline:	41.9%
Final:	**69%**
DIP Objective:	35% of mothers use appropriate feeding practices
Baseline:	18.4%
Final:	41.3%

Community members recognize the signs of dehydration and other diarrhea danger signs (i.e., malnutrition, frequent and prolonged diarrhea, fever, diarrhea with mucous or blood) that require immediate referral, and use these to plan to manage the diarrheal episode. The wide-spread use of ORS is **aided** by the project's development of an extensive system of community oral rehydration units (CORUs). The educational materials promoted the basic messages of UNICEF's ***Facts*** *for* ***Life*** for the control of diarrheal diseases. Of the mothers questioned by the evaluation team, nearly 100% could correctly describe how to prepare ORT.

The widespread use of antidiarrheal medications and antibiotics to treat diarrhea was of great concern at the beginning of the project, but has reduced as a result of the educational messages to the community and training of MINSA staff from 63.8% at baseline to **30.5%** at project end.

Individuals trained in the management of diarrheal diseases: 14 HOPE and 24 MINSA staff, and two Peace Corp Volunteers in supervision and quality control in the management of diarrheal diseases; as well as brigadistas managing a total of 127 base houses and 186 CORUs.

Nutrition

DIP Objective:	The percentage of mothers not breastfeeding exclusively will decrease from 76% at baseline to 5 1% at project end.
Baseline:	**76%**
Final:	**57.3%**
DIP Objectiw:	By, project end, 70% of mothers will be knowledgeable about appropriate weaning.
Baseline:	Not established
Final:	82% of mothers are providing other liquids and foods to children four months and older in addition to breastmilk.

In addition, the following nutrition-related results were obtained:

1. **The** percentage of mothers initiating breastfeeding within one hour of birth increased from 49.5% at baseline to 80% at project end;

2. 57.3% of children under four months were breastfed exclusively at project end,

compared to about 24% at baseline;

3. The number of children with a growth monitoring card increased from 62.2% to 88%, and the Percentage of children with a growth monitoring that were weighed in the four months preceding the survey increased from 44.7 % to 86 % ; and

4. The percentage of mothers that mentioned green leafy vegetables and yellow fruits as a good source of Vitamin A increased from 5.9 % and 19.8% at baseline, respectively, to 67.3% at project end.

The nutrition education component covered 65 communities in Boaco and 62 in Camoapa.

Since there was no local breastfeeding promotion/support organization in Nicaragua, Project HOPE contracted a Honduran organization, ALHACMA, to provide project and MINSA staff training. The education messages for the breastfeeding and weaning component of the project were adapted from UNICEF's ***Facts for Life***, Project HOPE/Honduras, and other organizations. However, more qualitative background studies are needed for further improving educational messages about exclusive breastfeeding for the first six months and weaning practices.

The Project HOPE health educators and brigadistas educated mothers in the consumption of locally available low-cost foods, particularly those rich in vitamin A. A significant barrier to improved nutrition remains the low family income in the target area.

MINSA staff and two Peace Carp volunteers were trained in growth monitoring norms, using weight for age indicators, ***WHO's Road to Health Card,*** and using Salter scales. The growth monitoring component was coordinated with the MINSA and included the referral of malnourished children, evaluation, and supervision. Children defined at high risk (premature, low birth weight, malnutrition, chronic diarrhea, ARI, and incomplete immunization schemes) were visited by project staff and brigadistas at home. Mothers were counseled about how to help their children gain weight and the importance of the growth monitoring card. Staff and brigadistas tried to determine reasons for loss of weight or failure to gain weight and emphasized that malnutrition can be prevented with the child survival interventions. Unfortunately, health centers and health posts are not always prepared to handle referrals of mothers and children that are nutritionally at risk.

Individuals trained in nutrition. 14 Project HOPE and 24 MINSA staff and two Peace Corp volunteers in breastfeeding promotion and norms, growth monitoring, and vitamin A supplementation and importance.

Maternal Care

DIP Objective:	At project end, 50% of women of fertile age will have received two doses of TT.
Baseline:	48.7%
Final:	81.2%

In addition, the following key maternal care results were obtained:

1. The percentage of women with maternal care cards increased from 27.1% at baseline *to 56.7%;*

2. Of the women with maternal care cards and space to record prenatal visits, 88.1% had two or more prenatal visits at project end compared to 83.3 % at baseline. (However, the absolute percentage for all women interviewed more than doubled: from 20.8% at baseline to 50% at project end);

3. The percentage of women pregnant at the time of the survey dropped from 11.1% at baseline to 4.3% at project end.

The project promoted good nutrition for pregnant and lactating **women.** However, because of the economic barriers mentioned above, more qualitative information is needed to determine of the nutritional intake of women has improved.

Limiting factors for per-i-natal care are transportation and the capability of health services to handle obstetric complications. Project HOPE has worked with the Association of Rural Busses to improve the transport problem and with MINSA to improve the referral of high risk pregnancies.

The project noted only a minimal increase in the of contraceptives for family planning and child spacing (baseline: 32.496, project end: 34.8%). An increase in interest was noted by project staff who referred women to MINSA and Profamilia family planning services. The price charged by Profamilia for contraceptives may be a barrier to many. Even though MINSA provides methods for free, contraceptive supply is poor.

Profamilia trained Project HOPE staff in family planning, and after it opened an office in **Boaco,** the coordination between HOPE and Profamilia has been strong and intensive. HOPE provides transportation to Profamilia staff who have established contraceptive distribution points in some of the **CORUs** and base houses.

Individuals trained in maternal care and family planning: 14 HOPE and 24 MINSA staff, two Peace **Corp** volunteers, and 301 brigadistas. Work was conducted in 127 communities.

Acute Respiratory Infections

DIP Objective:	50% of mothers will recognize the signs and danger symptoms of ALRI.
Baseline:	Fast or difficult breathing: 53.5%; chest in-drawing: 1.4%
Final:	Fast or difficult breathing: 83.3 % ; chest in-drawing: 25.3 %

Recognition of danger signs in mothers through intensive community education slightly increased maternal helpseeking behavior of health staff from 56.8% to 64.9%. This has increased the

demand for quality care at the health facility level. However, MINSA has had problems in providing adequate coverage with antibiotics. Therefore HOPE has provided assistance to MINSA in contacting international programs (MCH and PL-480) to improve the availability of antibiotics at the health facility level.

Training has been provided in the current case management norms of ALRIs, and basic messages from ***Facts*** *for* ***Life*** are promoted by the staff.

Individuals trained in the case management of Acute Lower Respiratory Infections: 14 Project HOPE and 24 MINSA staff, two Peace Corp Volunteers, and 301 brigadistas. The project worked with a total of 127 communities.

Project HIS

The computerized Health Information System was developed with the assistance from HIS staff from HOPE/Ecuador. The system is used for monthly activity reports from the brigadistas and field staff; type of activity and number of participants; types of health problems seen; number of referrals; growth monitoring data; listing of trained brigadistas and TBAs and the training they have received; vital statistics; and the number of immunizations administered by MINSA. The system has been invaluable in helping the project compile very timely reports for HOPE Center, USAID/Washington, USAID/Nicaragua, and MINSA.

HOPE and MINSA have frequent meetings (often weekly) to analyze the information and program activities. There seems to be a good flow of information from the community groups and volunteers through the HIS to MINSA and other institutions, but there is a lack of feedback to the communities.

Number of lessons given to groups: 5,420
Number of home visits: 35,584
Number of children immunized: 5,533
Number of WFA immunized with TT: 5,456
Number of ORS packets distributed: 34,312
Each brigadista has organized 1 - 4 mothers' clubs

Other Factors Affecting Project Outcomes

All project staff were trained in the child survival interventions, education of adults ("Training without Literacy"), and data collection. Similar training was provided to the Peace Corps volunteers and the brigadistas.

The project supervisors assisted the field staff in almost all of their educational activities.

Training topics took into account the seasonality of certain diseases.

Every two weeks all field staff meet with the two supervisors and the Program Director to

evaluate past activities and report to MINSA.

The field staff supervise the brigadistas individually on a monthly basis; every three months, group meetings are held to monitor their knowledge of CS interventions.

HOPE staff meet at least every three months with the main counterpart institutions (MINSA, Profamilia, the mayor's offices of Boaco and Camoapa, Peace Corps).

The staff is well aware of other CS activities implemented by ADRA, PCI, Project HOPE/Honduras, and HOPE Center and share ideas to improve program implementation, data collection systems and formats, and educational materials.

HOPE Center regularly send publications, manuals, and assorted educational materials to keep staff uptodate.

Project HOPE carefully selected 301 brigadistas from 476 in the project target area for training in the project activities. In addition, brigadistas have received bags for their educational materials and T-shirts, pencils, caps, an ID card, and other small forms of extrinsic incentives. Other motivating factors include the respect given by the communities, training opportunities, and social events.

A4. Unintended Benefits

1. After the education imparted by the project, demand increased for treatment of ARI and for contraceptives. This forced MlNSA to seek help from other international programs to assure the availability of antibiotics and contraceptives.

2. The immunization records are serving as a base for the SILAIS in the population census being carried out this month.

3. All 56 of the local mayors have become brigadistas viewing this as another way to serve their communities.

4. The project has captured the interest of other PVOs and government organizations who have requested a technical meeting to share results of the KPC surveys.

5. As a result of the project's educational messages about preventing diarrhea through personal and environmental hygiene, a demand was created among the communities for clean water and latrines. Project HOPE is supporting the communities in requesting these services from MINSA, PAHO, and ADRA.

6. As a result of the first training workshop on breastfeeding conducted by ALHACMA, an association has been formed to promote breastfeeding. This is the first organization for breast feeding support in Nicaragua.

AS. **Final Evaluation Survey**

The **final** survey and the results for relevant indicators are found in Appendix A.

B. Project Expenditures

B1. See Appendix B for Pipeline Analysis.

B2. Planned and Actual Expenditures

When compared to the DIP budget, the following changes were made:

Total expenditures for the project were $ 650,000 (70.8%) for USAID and $267,551 (29.2%) for Project HOPE. Headquarters expenditures amounted to approximately 15% of the total project costs.

Procurement costs could be held substantially lower than anticipated. Instead of utilizing **expatriate** cons&an&s, the project relied heavily on a transfer of lessons-learned and materials from Project HOPE's project in neighboring Honduras, as well as on use of local expertise. The costs for external evaluation were somewhat lower, because of savings in the implementation of the KPC surveys with the help of counterpart staff and the use of a regional external evaluator for the final evaluation. Most of the additional financial resources were channeled to increasing the human resources (community health educators), based on a strong recommendation of the external midterm evaluator. The fact that the project exceeded a number of its objectives demonstrated that this was a sound investment in project resources. Project HOPE received a new approved indirect **cost** rate to replace the past provisional indirect cost rate. In addition, the project received **a no-cost** extension for six months. Almost all of additional indirect costs were offset by an increase in the Project HOPE cash match to the project.

B3. Handling of Finances

Project expenditures were handled on a responsible manner and monies for field expenditures were available **on** a timely basis.

C. Lessons Learned

1. The **project reports,** which were regularly sent to MINSA, changed the attitude of the **MINSA directors in favor of** health education. MINSA now wants to sustain these activities **because** of their **effect** on health coverage. This is serving as an example to the rest of the **country.**

2. The brigadistas are sufficiently motivated by recognition and community respect, and by the satisfaction of **serving** others that they will continue to work in the communities forming the base for sustainability of project activities.

3. The **peri-urban** barrios do not respond equally well to the messages which were designed for rural areas.

4. T'he delay in processing the country agreement, which has meant that the staff work only on monthly contracts, has caused some anxiety and stress.. (The country agreement and national legal status are now being finalized.)

5. Inviting the participation of local mayors and teachers from the onset of the program is a means of promoting sustainability.

6. The participation of the private sector

Community Participation

water, to improve family hygiene and environmental sanitation.

The communities provided backing for the extension and continuation of activities, specifically in the installation of 127 base houses or CORUs. Every month the community conducts an oral evaluation of the brigadistas and the project.

A5. Community committees do not exist, but each brigadista works with one to four mothers' groups consisting of 20 mothers on the average that meet monthly. As the target population, they are representative of their community.

A6. The primary purpose of these groups is to receive education in the project's CS intervention, but some have worked with community leaders and other institutions to acquire water and latrines.

A7. The groups use methodologies that increase participation as the knowledge of mothers improves. Although not formally organized, the mothers' groups have solicited specific health information from the project, and either as individuals or as a group, they have asked for additional health services such as water or latrines, have insisted on ARI treatment from MINSA, and maintain a local supply of ORS.

AS. The community donated their time in attending the educational sessions; and make and their houses available for meetings, as base houses, CORUs, and FP distribution sites. The teachers provide school space for immunization campaigns. On some occasions, the community prepared lunch or refreshments to share during the educational sessions.

The communities also give intrinsic incentives of respect and recognition to the brigadistas which motivates them.

A9. The communities and mothers' groups are more aware of and concerned about their health and their role in seeking solutions as a result of participation in the project.

B. Ability and Willingness of Counterpart Institution to Sustain Activities

B1. The evaluation team conducted several interviews with the following individuals from counterpart institutions:

Dr. Ramon Castillo, Director of SILAIS/BOACO - MINSA
Haydeé Robles - Nursing Chief, SILAIS/BOACO - MINSA
Dr. Carolina Arinaga, Director Boaco Municipal Health Center
Dr. Armando Incer, Mayor of Boaco
Dr. Largaespada - Director, Profamilia
Ninmia Chaverri - Social Worker, Profamilia

B2. These institutions have a very friendly relationship with HOPE and are well-informed about the activities HOPE has carried out.

B3. MINSA (SILAIS/BOACO) is the principle counterpart for supporting the institutional and financial sustainability through provision of facilities, hiring personnel to work with HOPE, and seeking funds to improve the services offered in the health centers and posts of Boaco and Camoapa.

B4. & B7. All perceive the health education strategy as the most effective element of this child survival project.

B5. The project trained 24 MINSA personnel and two Peace Corps Volunteers in all CS strategies in methods of adult education, supervision and training of volunteers, and management of a community-based health information system.

B6. Although MINSA is short of funds, based on the final KPC survey results they plan to hire additional staff to work with the primary health care activities initiated by the project. They have also taken steps to secure funding for these activities from other sources such as PAHO and World Bank. MINSA continues to provide office space, water, electricity, and local communication costs, as well as seconded staff and materials to Project HOPE. Other local organizations are unable to provide resources to sustain project activities.

B8. HOPE trained the MINSA personnel to assume responsibility for the educational aspects of the project and enhanced their skills to provide improved primary care. MINSA will meet monthly with the brigadistas in the health center or post closest to them to provide supervision and training. The health centers and posts will continue to collect community information through the brigadistas' reports and pass it on to the municipal health center in Boaco for analysis and development of reports. Quarterly, the MINSA director will meet with the personnel of all health posts and centers to program activities. To date, MINSA has held four meetings for brigadistas with 90% attendance.

B9. MINSA committed to providing office space, furniture, utilities, and seconded nursing staff to the project. This commitment was carried out.

B10. N/A

B11. Project Design: Mayor of Boaco and MINSA.
Implementation and Evaluations: MINSA, Mayor of Boaco, Profamilia, community groups, and teachers.

C. Attempts to Increase Efficiency

C1. To decrease program expenses, HOPE created "work routes" on which the staff could visit several communities in a single day. This reduced transportation costs, a major program expense. They also conducted CHV training in the community, thus reducing costs for lodging, meals, and transportation of the many brigadistas. The project made a decision to pursue only educational activities after initially providing services such as immunizations, because this proved to be an expensive use of staff time. Instead, HOPE encouraged MINSA to provide the services.

C2. N/A

c3.

- Developing work routes in which the staff travel in the same direction on the same day to keep transportation costs minimal.
- Program with all local organizations to avoid duplication of activities.
- Holding training events in the communities.

D. Cost Recovery Attempts

D1. None

D2.-D4. N/A

D5. The Program Director of Project HOPE/Nicaragua has extensive experience in starting health posts in remote areas of Honduras and believes that this would be an opportunity for cost recovery in future projects.

E. Household Income Generation

E1. The gardening activities, implemented with assistance from the Agricultural University of Camoapa, Campesino a Campesino, and the Ministry of Agriculture, promoted to improve vitamin A consumption, and generated income for families who had excess produce to sell.

E2. The families earned an estimated $10 to $500 over the life of the project.

E3. This income did not contribute specifically to project activities. It may have been invested in better nutrition or health services, but this has not been documented.

E4. Because of lack of resources, some families cannot make changes in nutrition or access medical care. Therefore, income generation should be an integral part of any child survival project. One possibility is Village Health Ranks, an approach which Project HOPE is already implementing in other countries.

F. Other

F1. During the life of the project, HOPE worked towards sustainability by training the SILAIS staff in child survival interventions, supervision of educational activities of volunteers and personnel; and in the management of the health information system. All of these efforts were phased over gradually to SILAIS.

The training of brigadistas who are continuing to work with the communities was an essential component of creating sustainability. The establishment of base houses and CORUs in each community was another aspect of promoting sustainability.

Also, the creation of the immunological record, which is now being utilized by MINSA, was a major step towards sustainability.

F2. HOPE signed an agreement with MINSA at the onset in which the SILAIS/Boaco provided office space, seconded personnel, and materials and, in return, project activities were to be gradually turned over to them. This was carried out as planned.

Unplanned activities which formed a part of the sustainability effort included the following:

- HOPE assisted SILAIS/BOACO and MINSA in contacting other international programs (PL-480 and MCH) to obtain funds for hiring additional personnel, and obtain antibiotics, vaccines, and contraceptives. These additional funds will help to sustain the educational strategies promoted by Project HOPE.

- HOPE trained two Peace Corps volunteers who will continue working in the region for up to three more years.

- The invitation to teachers to participate in the CS activities produced another cadre of community-level personnel who can continue some of the interventions.

- The collaboration with Profamilia resulted in the involvement of some base houses and CORUs in the distribution of contraceptives.

- The involvement of the Agriculture University of Camoapa, the organization Campesino a Campesino, and the Ministry of Agriculture in the gardens intervention provided an opening for these institutions to start working in the communities.

- The creation of the first Pro-Breastfeeding Association in Boaw was an unplanned benefit of a workshop on breastfeeding.

F3.

- The educational strategy has created a demand for improved health services for mothers and children and this knowledge will remain with the women and the brigadistas.

- The mayors and the brigadistas have continued to attend the sessions after they were transferred to the SILAIS.

- The brigadistas continue acting as health counselors because of the intrinsic benefits they receive (recognition, community respect, and opportunities for further training provided by MINSA).

CONCLUSIONS

1. The project "Extending Successful Hospital-based Child Survival Activities into Surrounding Urban, Per&urban, and Rural Communities of Boaco, Nicaragua" was a success in the rural communities of Boaco and Camoapa.

2. All of the DIP objectives were met or surpassed, and the majority of planned activities carried out.

3. The educational strategy by itself was enough to bring about changes in the knowledge, attitudes, and practices of the target population.

4. As a result, the people value their health more and demand better curative health care from MINSA.

5. Increased awareness of the need for environmental sanitation has been converted into action by the project communities.

6. The peri-urban areas did not achieve the same level of success, perhaps due to the design of educational messages.

7. Because so many diarrhea cases are receiving proper home treatment for prevention of dehydration, the number of hospital admissions in Boaco for treatment of children with diarrhea has dropped 60%.

8. The sustainability of behavior changes is assured because of the changes in attitude of those who received the education.

9. MINSA is convinced of the positive effect of the educational strategy and will continue to **support** this type of activity.

RECOMMENDATIONS

1. The educational strategy as a CS intervention needs wntinual monitoring through qualitative studies.

2. In the design of the project, consider the role of the municipalities and private sector in financial and institutional sustainability.

3. Use the data collected in the HIS to create a system of epidemiological surveillance based on tendencies of vital statistics, immunization coverage, incidence of immune-preventible diseases, ARI, diarrhea, etc. Such a system is useful in detecting changes which might indicate the existence of a health problem.

4. Undertake qualitative research (focus groups and interviews) to determine what socio-cultural factors limit the impact of the health messages. Issues to be studied might include why infants are introduced to other liquids and foods early, beliefs about weaning practices, and barriers to using contraceptives in women not wanting more children, etc. All messages should be pretested prior to implementation.

5. Pre-test all materials and messages for comprehension, cultural appropriateness, and impact before dissemination.

6. Assure that standardized messages are given by health educators, brigadistas, and health care personnel.

7. Explore the possibility of developing health posts in the communities which have no access to basic services.

8. Having legal status and a country agreement from the onset of the project would make it possible to contract personnel for the life of the project.

9. Strengthening administrative and management abilities of project personnel will help with institutional sustainability.

10. Expand the HOPE staffs capabilities in family and institutional income generation. Another possibility for achieving financial sustainability is to require a match from counterpart institutions from the beginning.

11. Personnel should have knowledge of the budget with which they have to work and discuss with the coordinator how best to use their portion.

12. Train or refresh the HOPE staff in the use of focus groups as a method of qualitative research to obtain information for developing educational messages and materials, and for making programming decisions. They could maintain a data bank of such qualitative information.

13. HOPE could share information, lessons learned, and achievements with other institutions at regular meetings.

III. EVALUATION TEAM

A1. Julio R. Calderón, MD, External Evaluator
Hugo Barquero, MD, Country Director, Project HOPE
Julianne Guy, MPH, Assistant Director, MCH Programs, Project HOPE, USA
Luisa Castrillo, MD, Chief, Municipal Health Center, Camoapa, MINSA

A2. Julio R. Calderdn, MD

APPENDIX A

USAID CS INDICATORS

PVO Project Hope COUNTRY Nicaragua FUNDING YEAR _____

P or Expansion Project _____ Baseline or Final Survey _____

#	INDICATOR (submit results only for indicators that reflect project interventions)	RESULTS Numerator (N) Denominator (D) Percent (P)
1	NUT: Initiation of Breastfeeding - Percent of infants/children (less than 24 months) who were breast-fed within the first eight hours after birth.	N= 284 D= 300 P= 94.6
2	NUT: Exclusive Breastfeeding - Percent of infants under four months, who are being given only breast milk.	N= 24 D= 56 P= 42.8
3	NUT: Introduction of Foods - Percent of infants between five and nine months, who are being given solid or semi-solid foods.	N= 47 D= 54 P= 87
4	NUT: Persistence of Breastfeeding - Percent of children between 20 and 24 months, who are still breastfeeding (and below given solid/semi-solid foods).	N= 11 D= 32 P= 34.4
5	CDD: Continued Breastfeeding - Percent of infants/children with diarrhea in the past two weeks who were given the same amount or more breast-milk.	N= 80 D= 85 P= 94.1
6	CDD: Continued Fluids - Percent of infants/ children (less than 24 months) with diarrhea in the past two weeks who were given the same amount or more fluids other than breastmilk.	N= 68 D= 78 P= 87.1
7	CDD: Continued Foods - Percent of infants/ children (less than 24 months) with diarrhea in the past two weeks who were given the same amount or more food.	N= 55 D= 69 P= 79.7
	CDD: ORT Usage - Percent of infants/children (less than 24 months) with diarrhea in the past two weeks who were treated with ORT.	N= 84 D= 106 P= 80
9	Pneumonia Control: Medical Treatment - Percent of mothers who sought medical treatment for infant/child (less than 24 months) with cough and rapid, difficult breathing in the past two weeks.	N= 161 D= 184 P= 87.5
10	EPI: Access - Percent of children 12 to 23 months who received DPT1.	N= 140 D= 144 P= 97.2
11	EPI: Coverage - Percent of children 12 to 23 months who received OPV3.	N= 126 D= 144 P= 87.5
12	EPI: Measles Coverage - Percent of children 12 to 23 months who received Measles vaccine.	N= 126 D= 144 P= 87.5
13	EPI: Drop Out Rate - Percent change between DPT1 and DPT3 doses [(DPT1-DPT3) ÷ DPT1] for children 12 to 23 months.	N= 13 D= 140 P= 9.2
14	MC: Maternal Card - Percent of mothers with a maternal card.	N= 286 D= 300 P= 95.3
15	MC: Tetanus Toxoid Coverage (Card) - Percent of mothers who received two doses of tetanus toxoid vaccine (card).	N= 138 D= 300 P= 46
16	MC: Ante-Natal Visits (Card) - Percent of mothers who had at least one ante-natal visit prior to the birth of the child (card).	N= 168 D= 300 P= 56
17	MC: Modern Contraceptive Usage - Percent of mothers who desire no more children in the next two years, or are not sure, who are using a modern contraceptive method.	N= 100 D= 233 P= 42.9

COMMENTS: